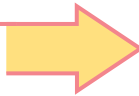


35 Building in Boomtown



It is time for the Boomtown City Council meeting to decide where to build the new housing. Participants will discuss the ecology and needs of the Boomtown community at each site. You will play the role of a builder, and present your plans for one of the building sites to the City Council for approval.

CHALLENGE



Where should Boomtown build its new apartments and houses?



MATERIALS



For each group of four students

- 1 poster board
- assorted colored poster pens



For each student

- 1 completed set of Geologist's Reports from Activity 34
- 1 Student Sheet 35.1, "Discussion Web: Our Building Site"
- 1 Student Sheet 35.2, "Evidence from the City Council Meeting"

PROCEDURE

1. Your teacher will assign your group one of the building sites. Your group will develop a building plan for this location.
2. Read all the reports for your location. The reports are found on the following pages.
3. With your group members, complete Student Sheet 35.1, "Discussion Web: Our Building Site." This will help you to identify the advantages and disadvantages of your location.

Remember to listen to and consider the ideas of the other members of your group. If you disagree with others in your group, explain why you disagree.

4. Work with your group to prepare a presentation and poster that will describe your building plans. Be sure you present information from the geologist, engineer, ecologist, and City Council Member, as well as from the various activities in the unit. Your poster should include:
 - the advantages of your chosen building site, based on evidence from this activity and from earlier activities in this unit.
 - the main disadvantages or risks of your proposed building site.
 - how your plan will succeed despite the disadvantages of your building site.
5. Make your presentation to the class and listen to those of the other groups. As you listen to each presentation, record the information on Student Sheet 35.2, "Evidence from the City Council Meeting."

ANALYSIS



1. Where do you think Boomtown should build new housing—on Green Hill, the Delta Wetlands, or Seaside Cliff? Describe the evidence that you used to make your decision and how you weighed the advantages and disadvantages of each location.



2. **Reflection:** Look in your science notebook to see how you answered Question 3 in Activity 24, “Where Shall We Build?”
 - a. Have you changed your mind since then?
 - b. What new information did you use in making your decision this time?

Reports from the Field

Delta Wetlands



ENGINEER’S REPORT

The biggest challenge for building on wetlands is managing all the water. First, pumps are needed to remove the water from the marsh and dry the area. Next, soil will have to be brought in and added to the current, loose soil of the wetlands. This will make the ground solid and stable enough for building. However, once the wetlands are filled in and covered with buildings and roads, the water from heavy rains will no longer be absorbed by the wetlands. This means that the water can build up at the lower elevations and flood the area. A system of canals can be used to collect excess water from rains and help prevent floods.

Walls can also be built to protect the buildings from water overflow or surges from the ocean during storms.

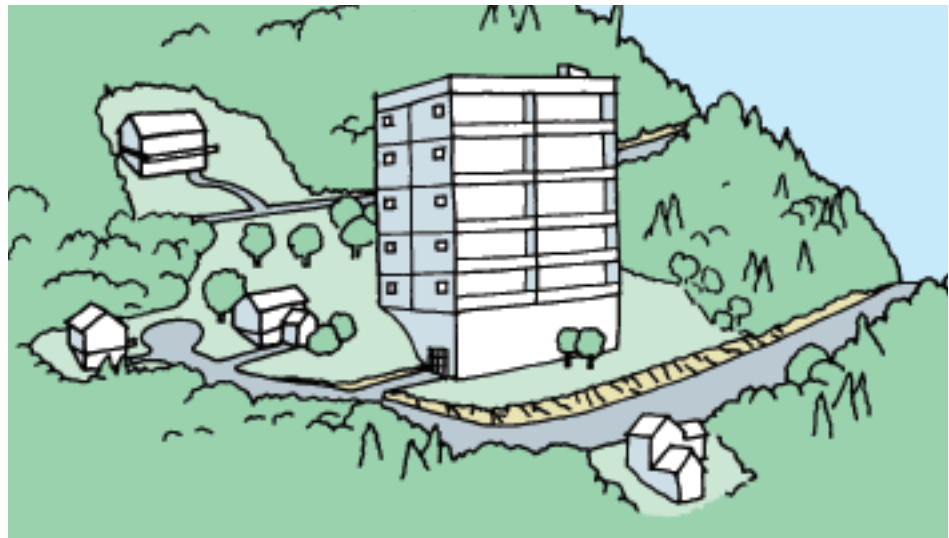
ECOLOGIST'S REPORT

Delta Wetlands is a unique habitat for shellfish, fish, and birds. These animals will no longer have a home if the wetlands are destroyed. The wetlands also help filter water before sending it to the ocean. If the sediments from the river are not deposited in the delta as nature intended, they will be carried directly to the ocean. Once there, the sediments could cloud the water near the beaches. This may lead to a loss of ocean fish and, as a result, a loss of the birds that eat the fish.

CITY COUNCIL REPORT

The city next to Boomtown filled in a wetland area 20 years ago and has not yet experienced any disasters, such as flooding. If Boomtown decides to fill in the wetlands, the plans must be evaluated by the Wetlands Protection Agency in order to determine the impact on the habitat. Their evaluation will take at least 12 months. It is likely that Boomtown will be required to preserve part of the wetlands.

Green Hill



ENGINEER'S REPORT

When we cut into the side of the hill to put up a building, it makes that part of the hill steeper and more likely to erode when it rains. When we cut down vegetation and cover the land with buildings

and roads, the water runs off in channels down the hill because it can no longer sink into the soil. To fix this problem, drainage pipes can be built so that the water can flow down without eroding the hill. Then, the water in the drainage pipes can be directed to the Rolling River. We also can plant a lot of vegetation on the slopes, wherever there are no buildings, to help the hill become more resistant to erosion.

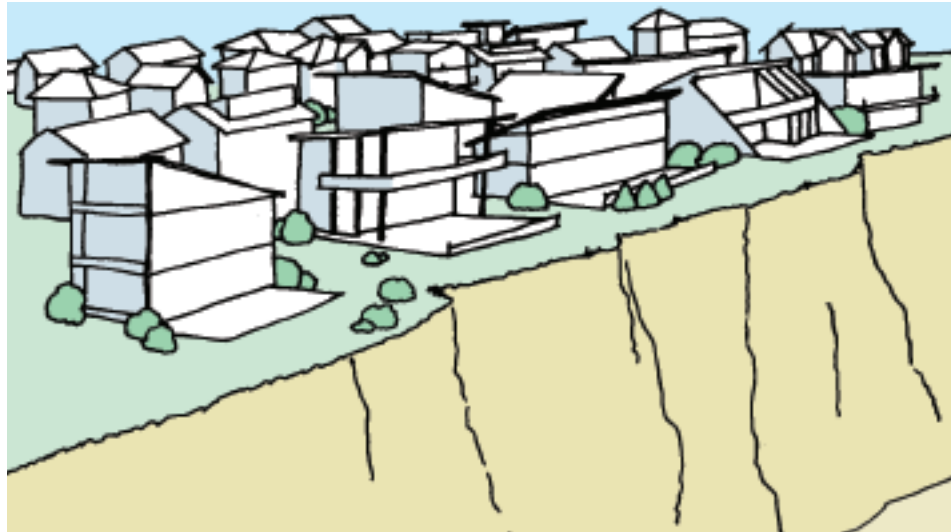
ECOLOGIST'S REPORT

Green Hill has an environment similar to that of other hills in the area. Where there are no houses and roads, the hill area is covered in thick forest. There are trees, grasses, and small bushes. Common wildlife on the hill includes deer, raccoons, rabbits, and foxes. Green Hill provides homes for these animals, as well as space for the animals to move between Pine Forest, Rolling River, and Riverside Forest. Building here will not only directly reduce the wildlife population by destroying their homes, but it will also stress the animals by preventing them from moving between areas with food and water.

CITY COUNCIL REPORT

People who already own houses on the hill are concerned about the new buildings. Some are upset that the habitat of the animals on the hill will be disturbed. Others think that large buildings will create bad traffic and congestion in the area. The Green Hill Neighborhood Organization is sending around a petition trying to block any new buildings on their hill. People in town are concerned that the water running off the hill could cause flooding or landslides that would affect the neighborhoods below the hill.

Seaside Cliff



ENGINEER'S REPORT

Structures built on cliffs suffer some of the same erosion problems due to heavy rain as do structures built on a hillside. Because of this, the problem is handled in a similar way—by improving drainage and planting vegetation that can absorb water. However, Seaside Cliff is also affected by the strong erosion force of the ocean waves that pound its base. This could cause the cliff to be undercut and, eventually, cause it to collapse. To prevent this, barriers should be placed at the bottom of the cliff to protect it from the waves. This could be in the form of retaining walls. Another way to slow down the erosion at the base of the cliff is to build a stone breakwater. This breakwater should be built in the water about 15 meters from the cliff. These additions will reduce the impact of the waves on the cliff and slow down the process of erosion.

ECOLOGIST'S REPORT

Seaside Cliff has some wildlife, although not as much as Green Hill. The cliff top is covered with vines, bushes, and a few small trees. The roots of these plants help to hold the soil in place. In order to build housing, these plants would have to be cleared, making the cliff erode more easily. Even if the vegetation is replanted after the building is finished, it will take a while for the plants to grow. In addition, there are also rabbits, gophers, deer, and other animals in the area. They would lose their homes because of the building.

CITY COUNCIL REPORT

Homes built on cliffs in other towns have been damaged when severe erosion causes the cliffs to collapse. Because of this, home insurance at Seaside Cliff will cost twice as much as in other areas of Boomtown. The buildings would have a great view of the ocean, though, and would be worth more than houses on the hillside. People from Boomtown have expressed concern that the houses will take away from the natural environment of the beach, since they will be so close to the water. The citizens of Boomtown are also worried that the seawalls or breakwaters will have negative effects on the beach and other places along the coast.